

Remarks

Claims 8, 10, 12 and 14 are amended. Claims 8 to 15 are pending in this application of which claims 8, 10, 12 and 14 are in independent form.

Claims 8 to 15 were rejected under 35 USC 112, second paragraph, for the reasons set forth on pages 2 to 4 of the action.

With respect to claim 8, the Examiner expressed the view that claim 8 is confusing because it is implying that there are two separate steps of applying voltage. The Examiner's observation is correct and claim 8 is amended herein to modify the second method step so as to make it part of the first method step to describe that the voltage across the first and second electrodes deviates from the thermodynamic equilibrium of the reaction which takes place in the exhaust-gas probe.

Also, the unclear term "somewhat" is deleted and a reference is provided with respect to which the oxygen partial pressure is reduced, namely, relative to the oxygen partial pressure in the exhaust gas.

On page 3, paragraph 5 of the action, reference is made to the "thermodynamic equilibrium voltage of the wanted reaction". This phrase is unclear and claim 8 is amended to delete the word "wanted" and to define what is intended by the thermodynamic equilibrium voltage. The thermodynamic equilibrium voltage is of a reaction which takes place in the exhaust-gas probe itself and is defined by the Nernst equation.

With respect to the objection in paragraph 6, page 3, of the

action, claim 8 is further amended to delete the term "dropping" and to substitute -- flowing -- therefor as suggested by the Examiner.

In view of the above, claim 8 should now be definite as required by the statute.

Claim 10 was also objected to for the same reasons as set forth with respect to claim 8 and has been similarly amended. In addition, the term "voltage adjusting" in claim 10 was objected to as being unclear. This term is indeed unclear and claim 10 is amended to delete "adjusting" and to substitute -- which results -- therefor.

Claims 12 and 14 were objected to for the same reasons as claims 8 and 10 and are amended herein to make the same corrections.

In view of the above, claims 8 to 15 should now be definite as required by the statute. In addition, claims 12 to 15 contain allowable subject matter so that these claims should now be in condition for allowance.

Claims 8 and 9 were rejected under 35 USC 103(a) as being unpatentable over Gao et al in view of Logothetis et al. The following will show that independent claim 8 patentably distinguishes the invention over this combination of references.

Gao et al discloses a method for measuring NO<sub>x</sub> concentrations and is directed to subject matter from which the applicants' invention proceeds. Gao et al, however, does not suggest or otherwise disclose the method step of:

"applying a constant external pump voltage across the first and second electrodes so that, in the interior of the

chamber, a reduced oxygen partial pressure relative to the oxygen partial pressure in the exhaust gas is adjusted by the electrochemical pumping off of the oxygen molecules and the voltage across said first and second electrodes deviating from the thermodynamic equilibrium voltage of the reaction which takes place in said exhaust-gas probe;"

This method step of claim 8 is followed by the method step:

"measuring and evaluating the current flowing across the electrodes.

The above method steps are nowhere suggested in Gao et al.

The secondary reference, Logothetis et al, was applied because it teaches that the voltage across the electrodes can be derived from either a measure of the voltage across the electrodes or the current flowing across a load resistor. However, this does not assist our person of ordinary skill to arrive at the above method steps in combination with Gao et al.

In view of the foregoing, applicants submit that claims 8 and 9 should now patentably distinguish the invention over the references applied thereto and be allowable.

Claims 10 and 11 were rejected under 35 USC 102(e) as being anticipated by Gao et al. The following will show that claim 10 patentably distinguishes the invention over this reference.

Essentially the same arguments apply for claim 10 as are advanced above with respect to claim 8. In this connection, the applicants note that there appears to be no suggestion in Gao et al which could lead our person of ordinary skill also to the second step of the method of claim 10 which provides for:

"applying a constant current to the probe ceramic and measuring and evaluating the voltage which results between the first

and second electrodes with this voltage  
deviating from the thermodynamic  
equilibrium voltage of the desired reaction  
which takes in said exhaust-gas probe."  
(emphasis added)

In view of the above, applicants respectfully submit that claim 10 patentably distinguishes their invention over Gao et al and should now be allowable.

Claims 9 and 11 are dependent from claims 8 and 10, respectively, so that these claims too should now be allowable.

Reconsideration of the application is earnestly solicited.

Respectfully submitted,



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